Transportation Impact Analysis

C AND G PROPERTY

Prepared for:
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May 2012

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Frequently Asked Questions

This section provides an overview of the following report through responses to frequently asked questions (FAQs).

Where is the project located?

The proposed development is located north of NE 75th Street and east of 126th Avenue NE in the South Rose Hill Neighborhood.

What is the project land use and trip generation?

The project would include the construction of up to 36 single family residences and is anticipated generate 36 weekday PM peak hour trips, with 23 inbound and 13 outbound trips.

What are the existing and future without-project conditions in the study area?

All study intersections currently operate at LOS B or better during the weekday PM peak hour. In 2014 without the proposed project, all study intersections will continue to operate at LOS B or better.

Would the project have any transportation impacts?

All study intersections and the site driveway is anticipated to operate at LOS B or better during the weekday PM peak hour after the project is completed and occupied.

What mitigation measures are recommended?

Specific off-site mitigation measures, including the extension of 128th Avenue NE for vehicular access are not recommended to reduce/offset potential site-generated traffic impacts.

Based on the results of this analysis all intersections are expected to operate at LOS B or better with the proposed project and with a connection provided to NE 75th Street only. A direct connection to the north via 128th Avenue NE is not needed based on a review of impacts at adjacent intersections. However, we do recommend that a pedestrian connection from the site to 128th Avenue NE is provided.

Introduction

The purpose of this transportation impact analysis (TIA) is to identify potential traffic-related impacts associated with the proposed residential development in Kirkland, WA. As necessary, mitigation measures are identified that would offset or reduce significant impacts.

Project Description

The proposed development is located north of NE 75th Street and east of 126th Avenue NE in the South Rose Hill Neighborhood and would include the construction of up to 36 single family homes. Access to the development is proposed via NE 75th Street only. The property is currently vacant. The proposed project is anticipated to be built and occupied by 2014. The site vicinity and the proposed site plan are illustrated in Figure 1 and Figure 2, respectively.

Study Approach

The scope and approach of this analysis was identified through coordination with City of Kirkland staff. In addition to the site access driveway accessed via NE 75th Street, five off-site intersections during the weekday PM peak hour were identified for analysis. It should be noted that none of the study intersections were identified as significant based on the City's proportional share impact worksheets shown in Appendix A, although have been included to review potential impacts associated with the current access proposal. The study intersections include:

1. 128th Avenue NE / NE 75th Street
2. 126th Avenue NE / NE 73rd Street
3. 128th Avenue NE / NE 80th Street
4. 130th Avenue NE / NE 80th Street
5. 130th Avenue NE / NE 75th Street

As identified during the pre-submittal meeting (6/16/11), the City has requested that the site provide an extension of 128th Avenue NE through the project site, connecting with NE 75th Street. An additional analysis has been completed to determine the impacts with and without the 128th Avenue NE connection.

Site Vicinity

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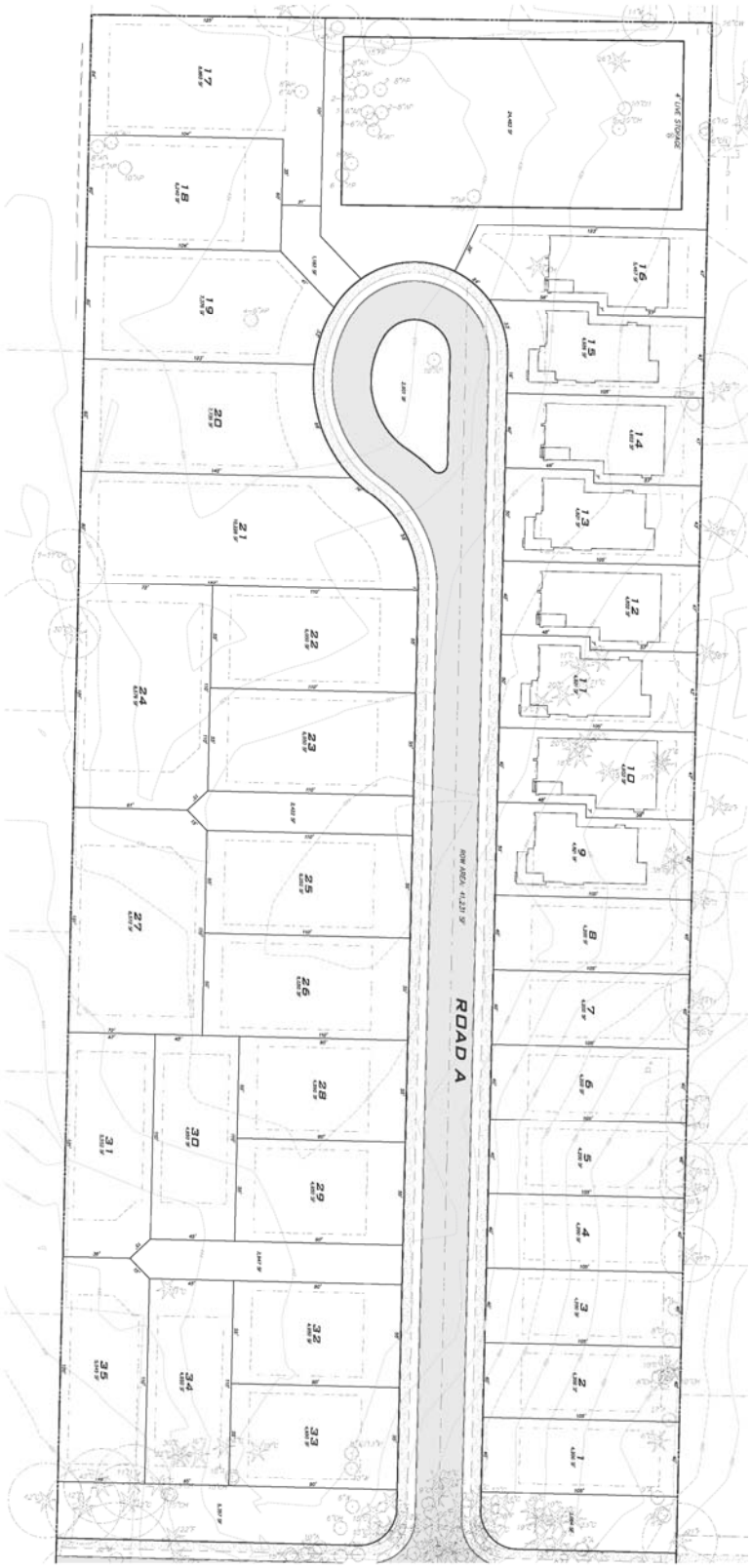
FIGURE

1



Site Plan

FIGURE
2

C and G Property

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Existing and Without-Project Conditions

This section describes both existing and 2014 without-project conditions within the identified study area. Study area characteristics are provided for the roadway network, planned improvements, existing and forecasted without-project volumes, traffic operations, and transit and non-motorized facilities.

Roadway Network

The existing roadway network is discussed along with planned improvements that would likely be complete before the proposed project horizon year, if any. In general, the roadway descriptions given apply to the portions of the roadways within the study area of the proposed project.

The street system providing access to the site includes two-way streets, with on-street parking on the local streets and sidewalks typically provided on arterial streets. The primary roadways within the vicinity of the site are described in Table 1.

Table 1. Roadway Network Existing Conditions Summary

Roadway	Street Classification	# Lanes	Pedestrian Facilities
128th Avenue NE	Collector	2	Sidewalks on both sides of street north of NE 80th Street
126th Avenue NE	Local	2	Sidewalks intermittent on the east and west side
130th Avenue NE	Local	2	Sidewalk located on west side
NE 73rd Street	Local	2	N/A
NE 75th Street	Local	2	Sidewalks on north side of street, except adjacent to site frontage
NE 80th Street	Local	2	Sidewalks on north and south side. Eastbound and westbound bicycle lanes.

Planned Improvements

The City of Kirkland *2011–2016 Capital Improvement Program* (CIP) was reviewed to identify transportation improvement projects planned for the study area. The CIP lists improvement projects that have been approved by the City and have identified funding sources within the next six years.

Based on this review, there are no street or intersection improvements in the project study area that are programmed to occur within the planning horizon for this analysis that would modify the channelization or increase the capacity at any of the study intersections.

Transit and Non-Motorized Facilities

In general, the project site is served by transit with one transit route (Route 238) operating within a short walking distance of the project site on NE 80th Street. Route 238 services Totem Lake, Kirkland, and Bothell with service provided approximately every 30 minutes on weekdays and every 60 minutes on weekends.

Traffic Volumes

Existing weekday PM peak hour traffic counts at study intersections were collected in February 2012. The existing traffic volumes are shown in Figure 3. Count sheets are provided in Appendix B.

2014 without-project volumes were estimated by applying a general annual growth rate of 1.0-percent to existing volumes. This growth rate is consistent with the growth assumed in the concurrency model. In addition to the background growth rate, the City has requested that two pipeline projects be included, Potala Village and McCleod. Figure 4 illustrates 2014 without-project weekday PM peak hour traffic volumes at the study intersections.

Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). Level of service for intersection operations is described alphabetically (A through F). LOS is based on the calculated average control delay per vehicle and is typically reported for the whole intersection for signalized and all-way stop-controlled intersections, and by movement for two-way, stop-controlled intersections. Control delay is defined as the combination of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Appendix C provides a more detailed explanation of LOS.

As described in the City of Kirkland's *Traffic Impact Analysis Guidelines*, the City requires project developers to mitigate intersections operating at LOS E when the project's proportionate share exceeds 15 percent of the intersection's total entering volume. For intersections operating at LOS F, projects are required to mitigate impacts when the project's proportionate share is greater than 5 percent of the total entering volume. Intersections operating at LOS A through D require no mitigation.

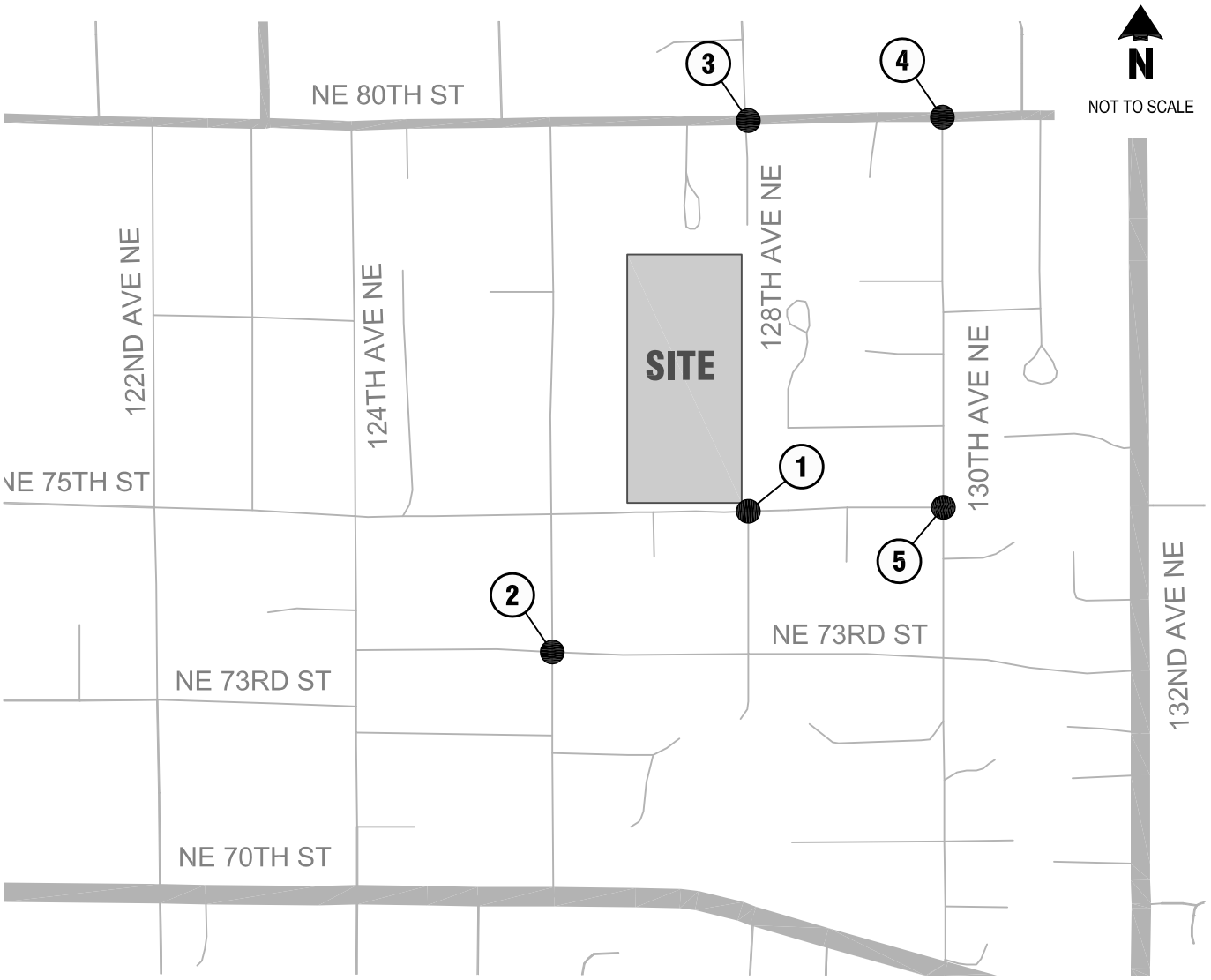
Existing and 2014 without-project peak hour level of service was calculated at study intersections based on methodologies contained in the *Highway Capacity Manual* (Transportation Research Board, 2000). *Synchro 7.0* was used for the calculations. Results for the weekday PM peak hour are summarized in Table 2. Detailed LOS worksheets are included in Appendix D.

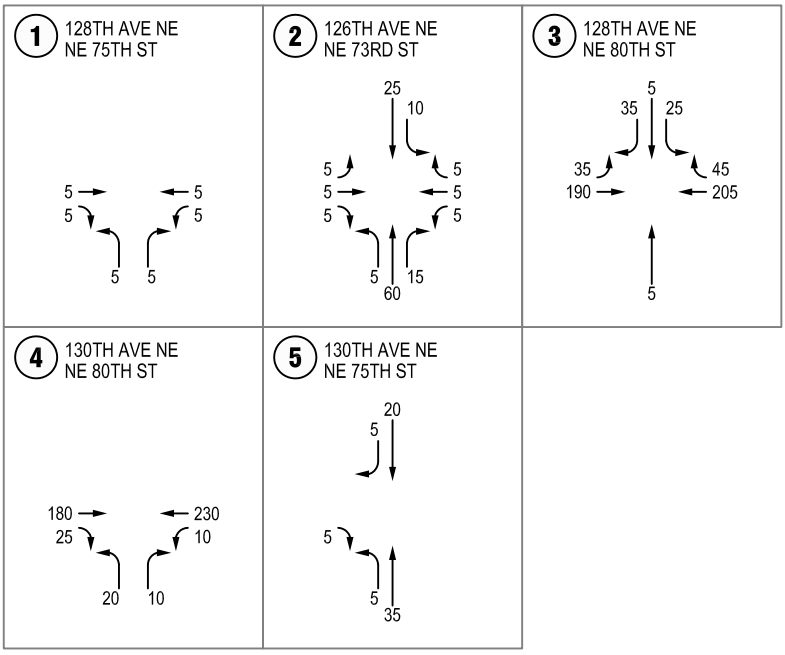
Table 2. Existing and 2014 Without-Project LOS Summary – Weekday PM Peak Hour

	Existing (2012)			2014 Without-Project		
Intersection	**LOS[1]**	**Delay[2]**	**V/C[3] or WM[4]**	**LOS**	**Delay**	**V/C or WM**
128th Avenue NE / NE 75th Street	A	8.9	EB	A	8.9	EB
126th Avenue NE / NE 73rd Street	A	9.4	WB	A	9.4	WB
128th Avenue NE / NE 80th Street	B	13.4	NB	B	13.5	NB
130th Avenue NE / NE 80th Street	B	11.4	NB	B	11.5	NB
130th Avenue NE / NE 75th Street	A	8.4	EB	A	8.4	EB

1. Level of Service as defined in the *Highway Capacity Manual* (TRB, 2000)
2. Average delay per vehicle in seconds.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement or approach reported for unsignalized intersections.

As shown in Table 2, during the existing and 2014 without project weekday PM peak hour, all study intersections currently operate at LOS B or better.





Existing Weekday PM Peak Hour Traffic Volumes

FIGURE 3

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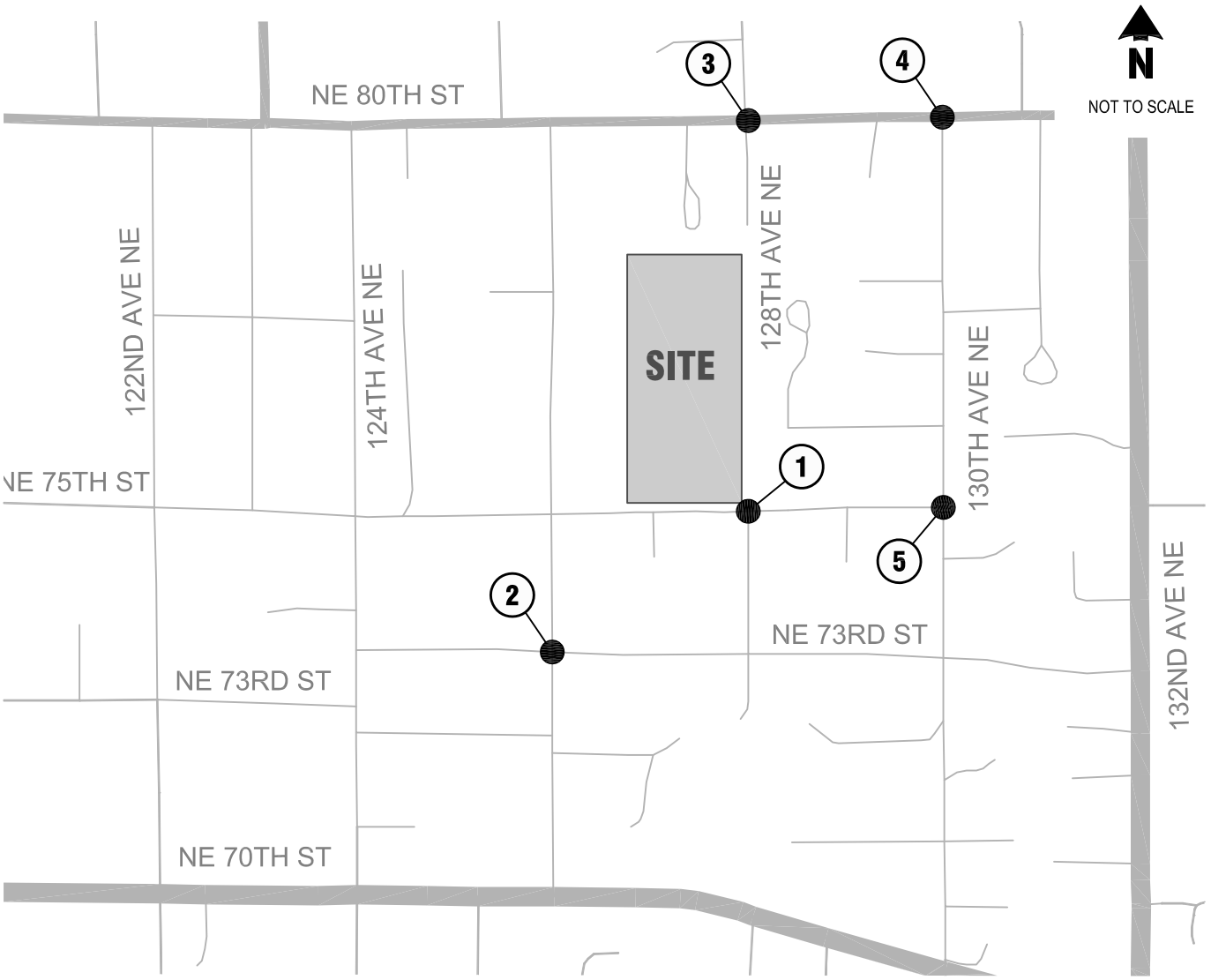

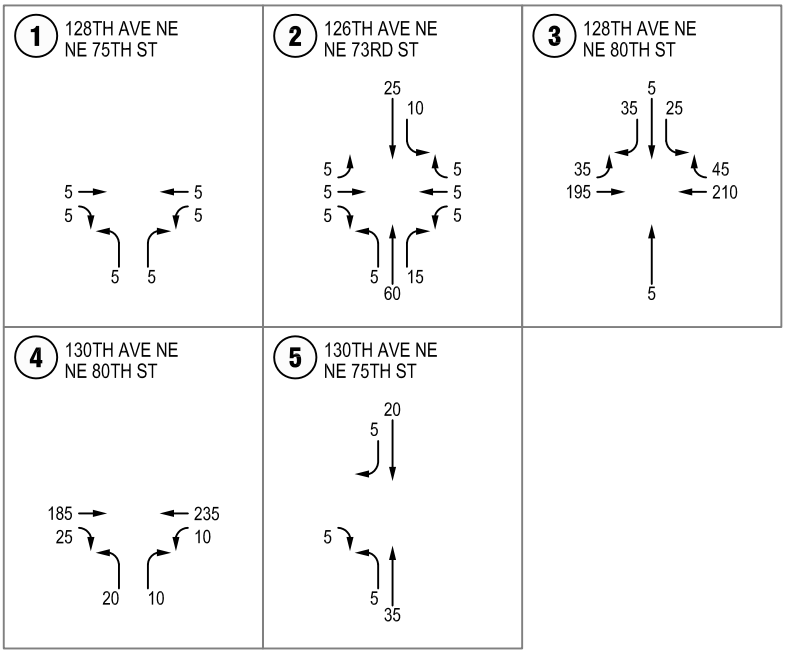

2014 Without-Project Weekday PM Peak Hour Traffic Volumes

FIGURE 4

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Project Impacts

This section of the analysis documents project-generated impacts within the study area. First, peak hour traffic volumes are estimated, distributed, and assigned to adjacent roadways and intersections within the study area. Next, 2014 volumes are projected and the potential impact to traffic volumes, traffic operations, safety, non-motorized facilities, and transit are identified. Where intersections are shown to not comply with City of Kirkland standards, mitigation measures are identified.

Trip Generation

Project trip generation was estimated for the apartment land use based on average trip rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation* (8th Edition, 2008). The estimated trip generation for the current proposal was based on ITE land-use code 210 Single Family Detached Housing. Table 3 shows the resulting weekday PM peak hour vehicle trip generation.

Table 3. Weekday PM Peak Hour Project Trip Generation

Land Use	Size	Daily	PM Peak Rate[1]	Primary Trips		
				Total	In	Out
Single Family Detached (LU 210)	36 units	344	1.01	36	23	13

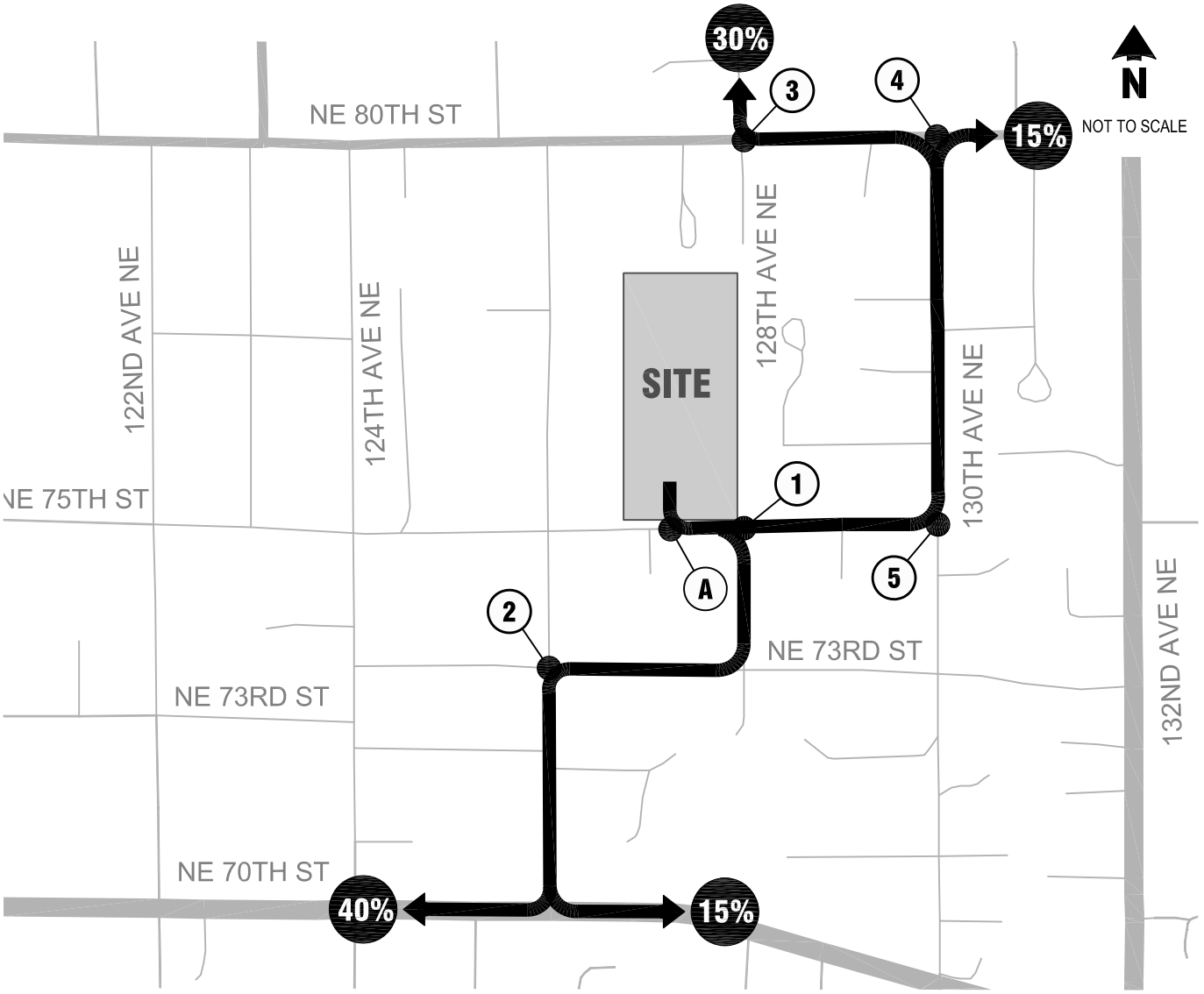
1. Rates based on ITE Trip Generation Manual, 8th Edition (2008).

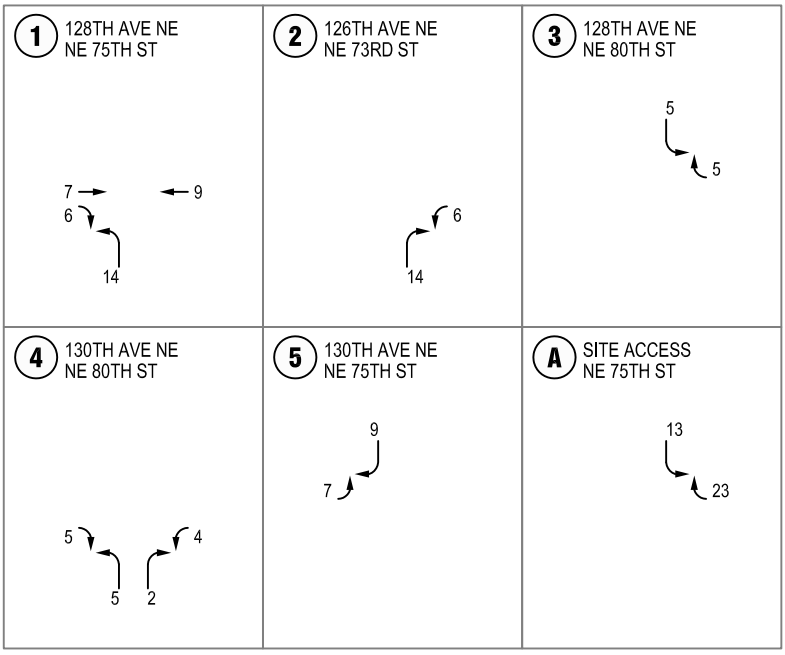
The development is anticipated generate 36 weekday PM peak hour trips, with 23 inbound and 13 outbound trips.

Trip Distribution and Assignment

Project traffic generated by the proposed project was assigned to the surrounding roadway network based on the distribution provided by the City of Kirkland Concurrency Model. The resulting distribution is illustrated in Figure 5. Project trips were then assigned to the roadway network based on the distribution, and are also shown in Figure 5.

The net new project-generated traffic was added to without project traffic volumes to obtain 2014 with-project weekday PM peak hour traffic volumes for the study intersections and is illustrated in Figure 6.





Trip Distribution and Assignment

FIGURE **5**

C and G Property

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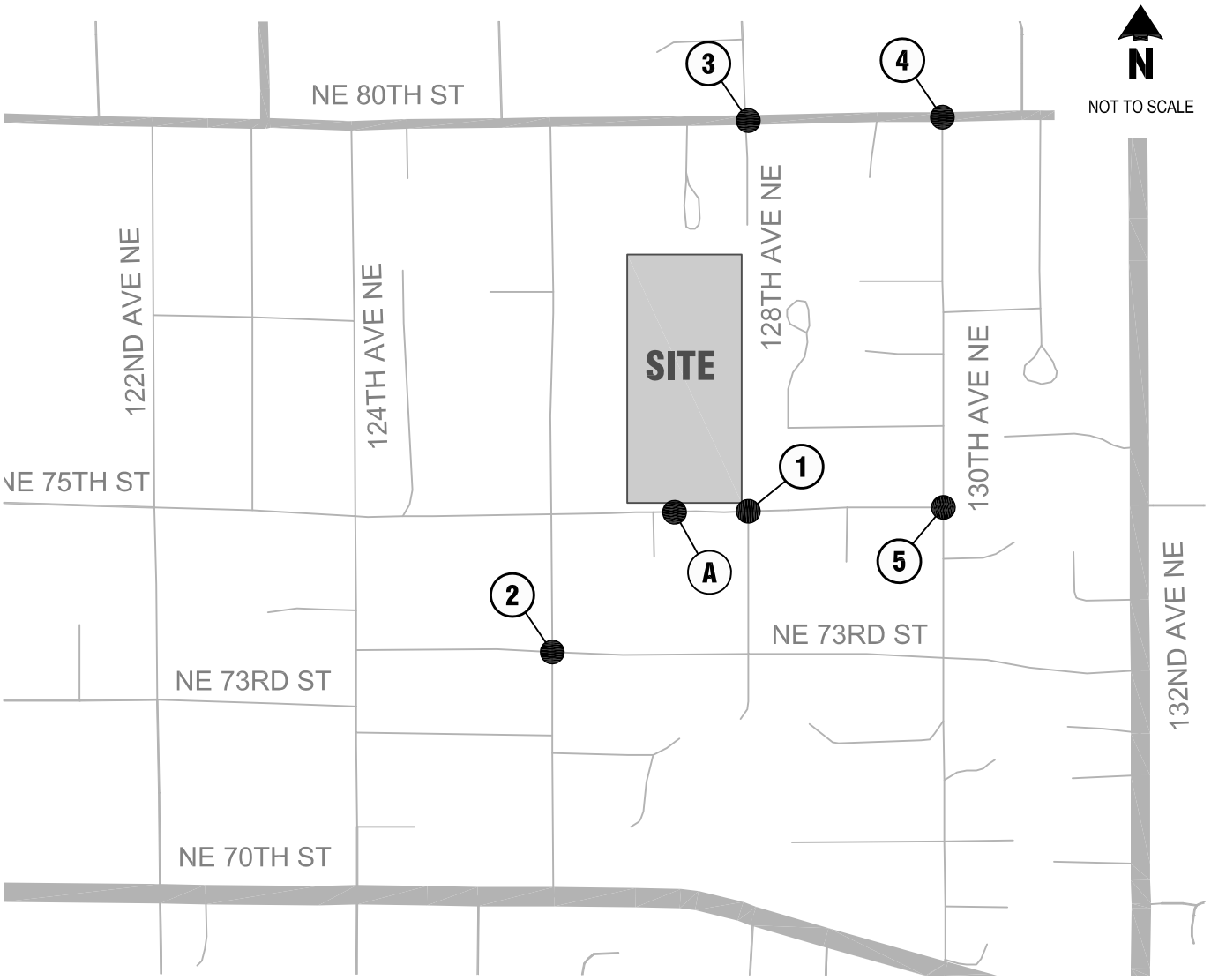

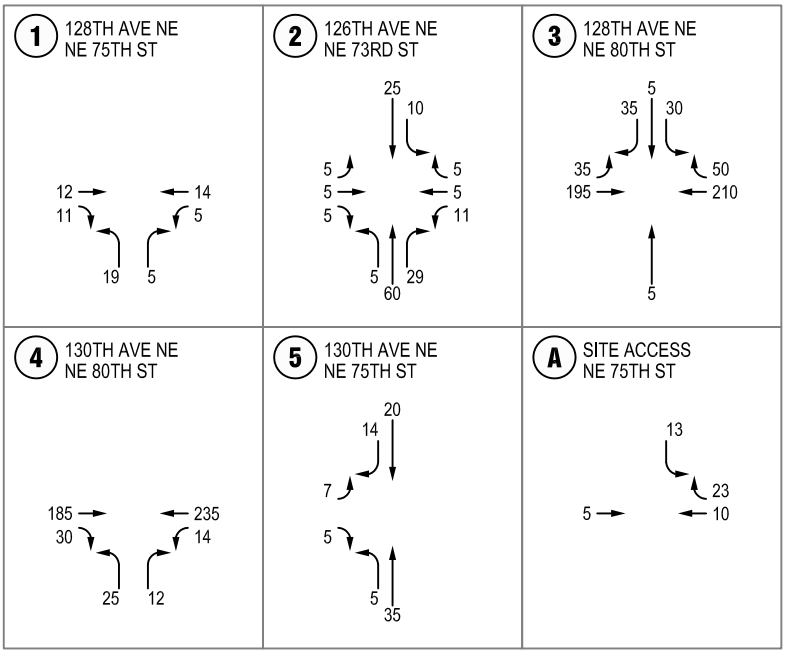

Future With-Project Weekday Peak Hour Traffic Volumes

FIGURE 6

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Traffic Operations Impact

Future with-project level of service analysis was conducted for the weekday PM peak hour to analyze traffic impacts of the proposed project. The same methodologies were applied and all intersection parameters such as channelization and intersection control were held consistent with those used in the evaluation of existing and without project conditions. Table 4 compares the 2014 without- and with-project traffic operations during the weekday PM peak hour. The detailed LOS worksheets are included in Appendix D.

Table 4. Future Without- and With-Project LOS Summary - PM Peak Hour

Intersection	2014 Without-Project			2014 With-Project		
	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
128th Avenue NE / NE 75th Street	A	8.9	EB	A	9.1	EB
126th Avenue NE / NE 73rd Street	A	9.4	WB	A	9.5	WB
128th Avenue NE / NE 80th Street	B	13.5	NB	B	13.6	NB
130th Avenue NE / NE 80th Street	B	11.5	NB	B	11.7	NB
130th Avenue NE / NE 75th Street	A	8.4	EB	A	8.8	EB
Site Access / NE 75th Street	-	-	-	A	8.7	SB

1. Level of Service as defined by the *Highway Capacity Manual* (TRB, 2000)
2. Average delay per vehicle in seconds.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst Movement reported for unsignalized intersections.

As shown in Table 4 all study intersections are anticipated to operate at LOS B or better during with-project. The delay at the study intersections is expected to increase by less than two seconds from without to with-project conditions.

Site Access

Access to the site is provided via one full access driveway on NE 75th Street. As shown in Table 4 driveway operations are anticipated to operate at LOS B or better during the weekday PM peak hour.

128th Avenue Connection

Through the scoping process, City of Kirkland staff requested that 128th Avenue NE be extended from NE 80th Street through the site to NE 75th Street. This section summarizes the results of an analysis completed assuming this connection.

Traffic Volumes

Project traffic volumes as well as anticipated background traffic volumes were shifted assuming the 128th Avenue NE connection to the site. Based on a review of the roadway network and number of residences near the 128th Avenue connection an estimate of background trips utilizing the new 128th Avenue NE connection was made for the weekday PM peak hour period. The potential users of this new connection include the residences located on NE 75th Street between 128th Avenue NE and the roadway closure west of 127th Avenue NE, residences on 127th Avenue NE, and potentially a couple of residences on 128th Avenue NE between NE 75th Street and NE 73rd Street. This results in approximately 9 - 12 residences totaling approximately 16 trips during the weekday PM peak hour (based on recent turning movement counts). The resulting traffic volume assignment and with-project

volumes during the weekday PM peak hour with the 128th Avenue NE connection are shown in Figure 7.

Traffic Operations

An operations analysis consistent with methodologies presented earlier in this report was completed to understand the impacts to intersection operations with and without the 128th Avenue NE connection. Table 5 shows a comparison of the 2014 with-project weekday PM peak hour LOS with and without the 128th Avenue NE connection.

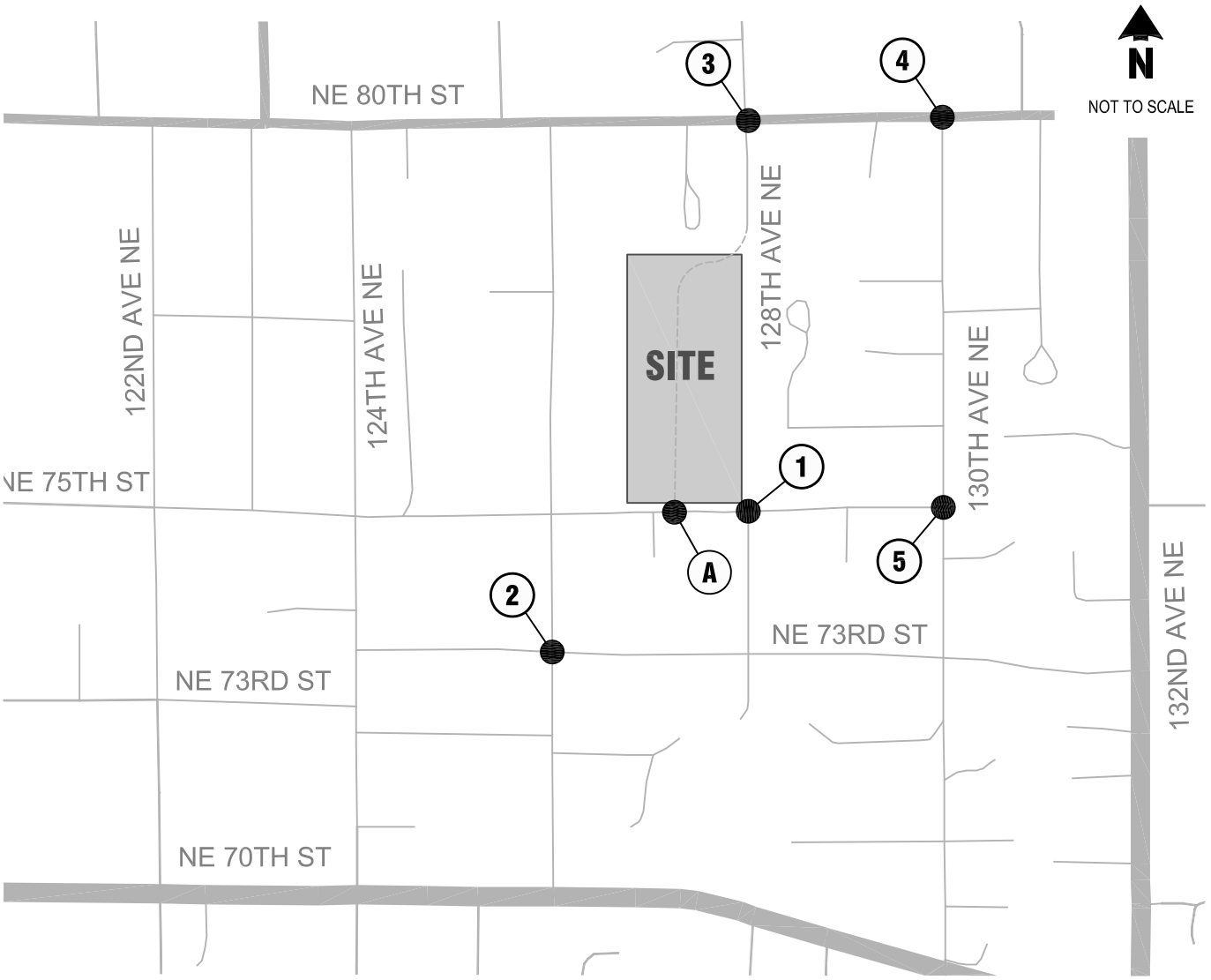
Table 5. 2014 With Project Weekday PM Peak Hour LOS Summary

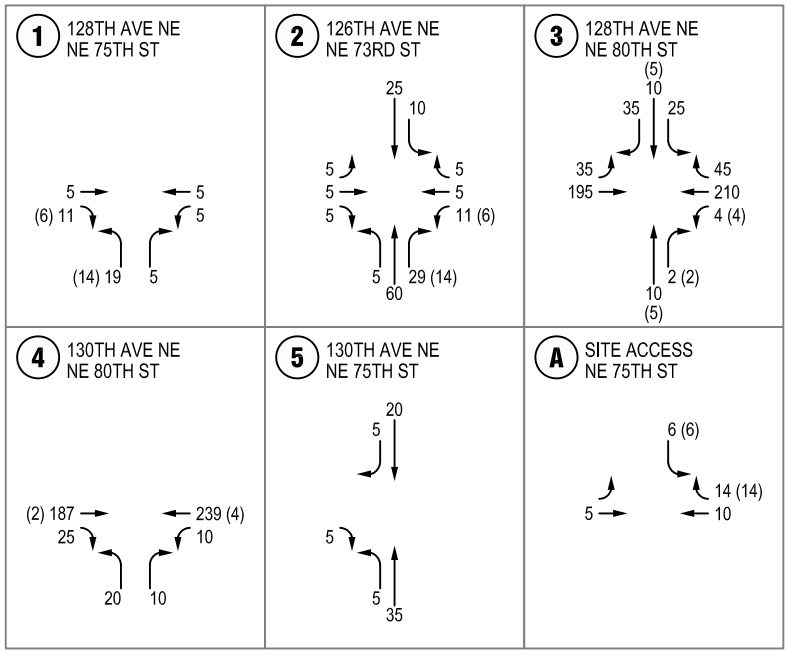
Intersection	Without 128th Avenue Connection			With 128th Avenue Connection		
	LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM
With 128th Avenue Connection						
128th Avenue NE / NE 75th Street	A	9.1	EB	A	8.9	EB
126th Avenue NE / NE 73rd Street	A	9.5	WB	A	9.5	EB
128th Avenue NE / NE 80th Street	B	13.6	NB	B	13.1	NB
130th Avenue NE / NE 80th Street	B	11.7	NB	B	11.5	NB
130th Avenue NE / NE 75th Street	A	8.8	EB	A	8.4	EB
Site Access / NE 75th Street	A	8.7	SB	A	8.7	SB

1. Level of service, based on 2000 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Worst movement reported for unsignalized intersections.

As shown in Table 5, intersection operations remain at the same LOS with minimal change in delay with and without the 128th Avenue NE connection. Thus, this connection is not necessary to provide adequate vehicular access to the project site and surrounding roadway network. An analysis of local circulation patterns in the area suggests that this connection would impact only a nominal number of users.

Although not needed for vehicular access, a pedestrian connection via the 128th Avenue NE right-of-way is recommended to provide access to NE 80th Street.





LEGEND

X = PM PEAK HOUR

(X) = PM TRIP ASSIGNMENT

128th Avenue Connection Trip Assignment and With-Project Volumes

FIGURE 7

C and G Property

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Findings and Recommendations

This transportation impact analysis summarizes the potential project traffic related impacts of the proposed residential development in Kirkland, WA. The following outlines the general findings of the study.

- The development is anticipated generate 36 weekday PM peak hour trips, with 23 inbound and 13 outbound trips.
- All study intersections would continue to operate at LOS B or better during with or without-project conditions.
- The site access driveway is anticipated to operate at LOS B during the weekday PM peak hour.
- Specific off-site mitigation measures including the 128th Avenue NE extension to the site are not required to reduce/offset potential site-generated traffic impacts.

Appendix A: City of Kirkland Concurrency Results

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	C and G Property		
Major Street[1]	85th St	# of Lanes*=	2
Minor Street[1]	128th Ave	# of Lanes*=	1

DATE: 3/9/2012

Daily Project Traffic Entering the Intersection		**Daily Volumes**	***Entering Leg Volumes****		
(Total of both approaches divided by two)	Major Street Volume V_1 =	2.5	4	1	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	2.5	5	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.03%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.05%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.02%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.10%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.04%
$S_2=(P_3+P_4)/2$=	0.06%

Intersection Proportional Share = Maximum of S1 and S2 = 0.06%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	Scott Lee
Company:	Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	C and G Property		
Major Street[1]	NE 90th Street	# of Lanes*=	1
Minor Street[1]	124th Avenue NE	# of Lanes*=	1

DATE:

3/9/2012

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	1.5	2	1	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.02%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.01%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.01%
$S_2=(P_3+P_4)/2$=	0.01%

Intersection Proportional Share = Maximum of S1 and S2 = 0.01%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	Scott Lee
Company:	Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	C and G Property		
Major Street[1]	NE 85th Street	# of Lanes*=	2
Minor Street[1]	124th Avenue NE	# of Lanes*=	1

DATE:

3/9/2012

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	2.5	2	3	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	1	0	2	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.03%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.02%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.02%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.04%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.02%
$S_2=(P_3+P_4)/2$=	0.03%

Intersection Proportional Share = Maximum of S1 and S2 = 0.03%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	Scott Lee
Company:	Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	C and G Property		
Major Street[1]	NE 85th Street	# of Lanes*=	2
Minor Street[1]	120th Avenue NE	# of Lanes*=	1

DATE:

3/9/2012

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	2	2	2	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	***1***	***1***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.02%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.01%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.01%
$S_2=(P_3+P_4)/2$=	0.01%

Intersection Proportional Share = Maximum of S1 and S2 = 0.01%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: Scott Lee

Company: Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	C and G Property		
Major Street[1]	NE 70th Street	# of Lanes*=	1
Minor Street[1]	132nd Avenue NE	# of Lanes*=	1

DATE: 3/9/2012

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	1.5	2	1	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0.5	1	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.02%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.01%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.01%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.02%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.01%
$S_2=(P_3+P_4)/2$=	0.02%

Intersection Proportional Share = Maximum of S1 and S2 = 0.02%

Significant Intersection? no

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	Scott Lee
Company:	Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	C and G Property		
Major Street[1]	NE 70th Street	# of Lanes*=	1
Minor Street[1]	116th Avenue NE	# of Lanes*=	1

DATE:

3/9/2012

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	2.5	1	4	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	5	0	10	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.03%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.10%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.02%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.20%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.07%
$S_2=(P_3+P_4)/2$=	0.11%

Intersection Proportional Share = Maximum of S1 and S2 = 0.11%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	Scott Lee
Company:	Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	C and G Property		
Major Street[1]	70th Street	# of Lanes*=	1
Minor Street[1]	I-405 SB	# of Lanes*=	1

DATE: 3/9/2012

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	2.5	4	1	***Major***
(Total of both approaches divided by two)	Minor Street Volume V_2 =	0	0	0	***Minor***

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10{,}000 \times f_1)$ =	0.03%
$P_2=V_2/(5{,}000 \times f_2)$ =	0.00%
$P_3=V_1/(15{,}000 \times f_3)$ =	0.02%
$P_4=V_2/(2{,}500 \times f_4)$ =	0.00%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.02%
$S_2=(P_3+P_4)/2$=	0.01%

Intersection Proportional Share = Maximum of S1 and S2 = 0.02%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	Scott Lee
Company:	Transpo Group

Proportional Share Impact Worksheet

Input appropriate information in green cells

[1] See "*Intersection Description*" worksheet for descriptions

1. May Change without notice, call Thang Nguyen 425-587-3869 with questions

			Through Lanes[1]
Project Name:	C and G Property		
Major Street[1]	116th Street	# of Lanes*=	1
Minor Street[1]	I-405 NB	# of Lanes*=	1

DATE:

3/9/2012

Daily Project Traffic Entering the Intersection

		Daily Volumes	*Entering Leg Volumes* *		
(Total of both approaches divided by two)	Major Street Volume V_1 =	0	0	0	*Major*
(Total of both approaches divided by two)	Minor Street Volume V_2 =	5	10	0	*Minor*

***Do not leave cell empty for zero volume**

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	***1***	***0.833***	***1***

Calculate Base Percentages

$P_1=V_1/(10,000 \times f_1)$ =	0.00%
$P_2=V_2/(5,000 \times f_2)$ =	0.10%
$P_3=V_1/(15,000 \times f_3)$ =	0.00%
$P_4=V_2/(2,500 \times f_4)$ =	0.20%

Calculate Proportional Share

$S_1=(P_1+P_2)/2$=	0.05%
$S_2=(P_3+P_4)/2$=	0.10%

Intersection Proportional Share = Maximum of S1 and S2 = 0.10%

Significant Intersection? **no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By:	Scott Lee
Company:	Transpo Group

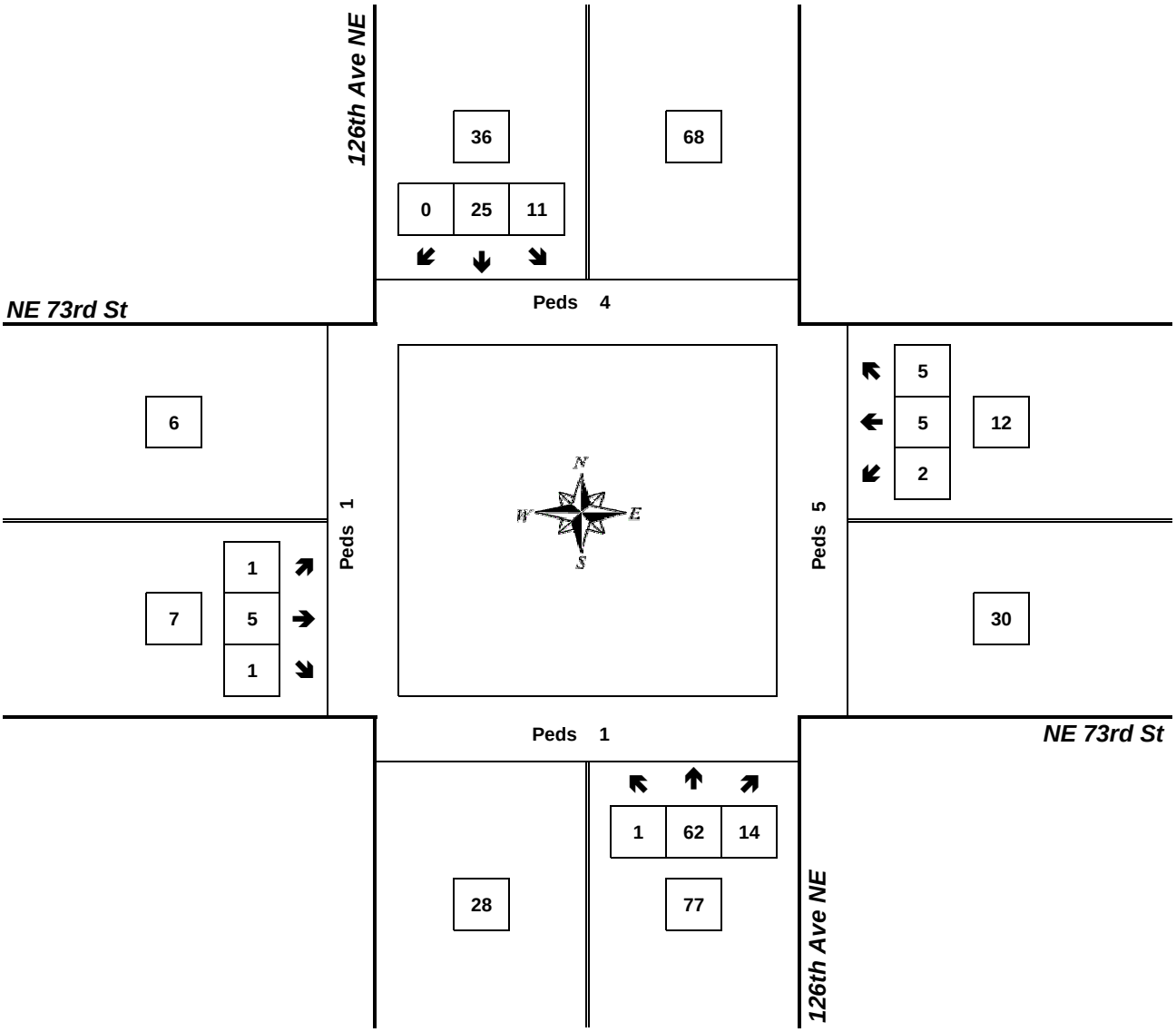
Appendix B: Traffic Volumes

Peak Hour Summary

Mark Skaggs
(206) 251-0300

126th Ave NE & NE 73rd St

5:00 PM to 6:00 PM
Wednesday, February 22, 2012

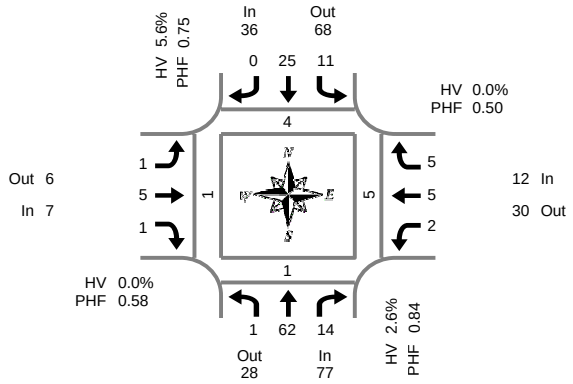


Approach	PHF	HV%	Volume
EB	0.58	0.0%	7
WB	0.50	0.0%	12
NB	0.84	2.6%	77
SB	0.75	5.6%	36
Intersection	0.92	3.0%	132

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Mark Skaggs
(206) 251-0300



Peak Hour Summary
5:00 PM to 6:00 PM

126th Ave NE & NE 73rd St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 73rd St				Westbound NE 73rd St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	11	3	0	2	3	0	0	0	0	0	0	1	0	0	0	20	0	0	0	0
4:15 PM	0	4	2	0	0	4	0	0	0	0	0	0	0	1	2	0	13	0	1	1	0
4:30 PM	0	5	3	1	0	5	0	0	0	0	1	0	2	0	1	0	17	0	0	0	0
4:45 PM	0	13	3	0	2	4	1	0	0	1	0	0	0	4	0	0	28	0	0	0	0
5:00 PM	0	16	3	0	7	5	0	1	0	1	1	0	1	2	0	0	36	2	0	0	0
5:15 PM	1	14	3	0	1	8	0	0	0	3	0	0	1	1	4	0	36	1	0	4	0
5:30 PM	0	13	4	1	3	6	0	1	1	1	0	0	0	2	1	0	31	0	1	1	1
5:45 PM	0	19	4	1	0	6	0	0	0	0	0	0	0	0	0	0	29	1	0	0	0
Total Survey	1	95	25	3	15	41	1	2	1	6	2	0	5	10	8	0	210	4	2	6	1

Peak Hour Summary
5:00 PM to 6:00 PM

By Approach	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 73rd St				Westbound NE 73rd St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	77	28	105	2	36	68	104	2	7	6	13	0	12	30	42	0	132	4	1	5	1
%HV	2.6%				5.6%				0.0%				0.0%				3.0%				
PHF	0.84				0.75				0.58				0.50				0.92				

By Movement	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 73rd St				Westbound NE 73rd St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	62	14	77	11	25	0	36	1	5	1	7	2	5	5	12	132
PHF	0.25	0.82	0.88	0.84	0.39	0.78	0.00	0.75	0.25	0.42	0.25	0.58	0.50	0.63	0.31	0.50	0.92

Rolling Hour Summary
4:00 PM to 6:00 PM

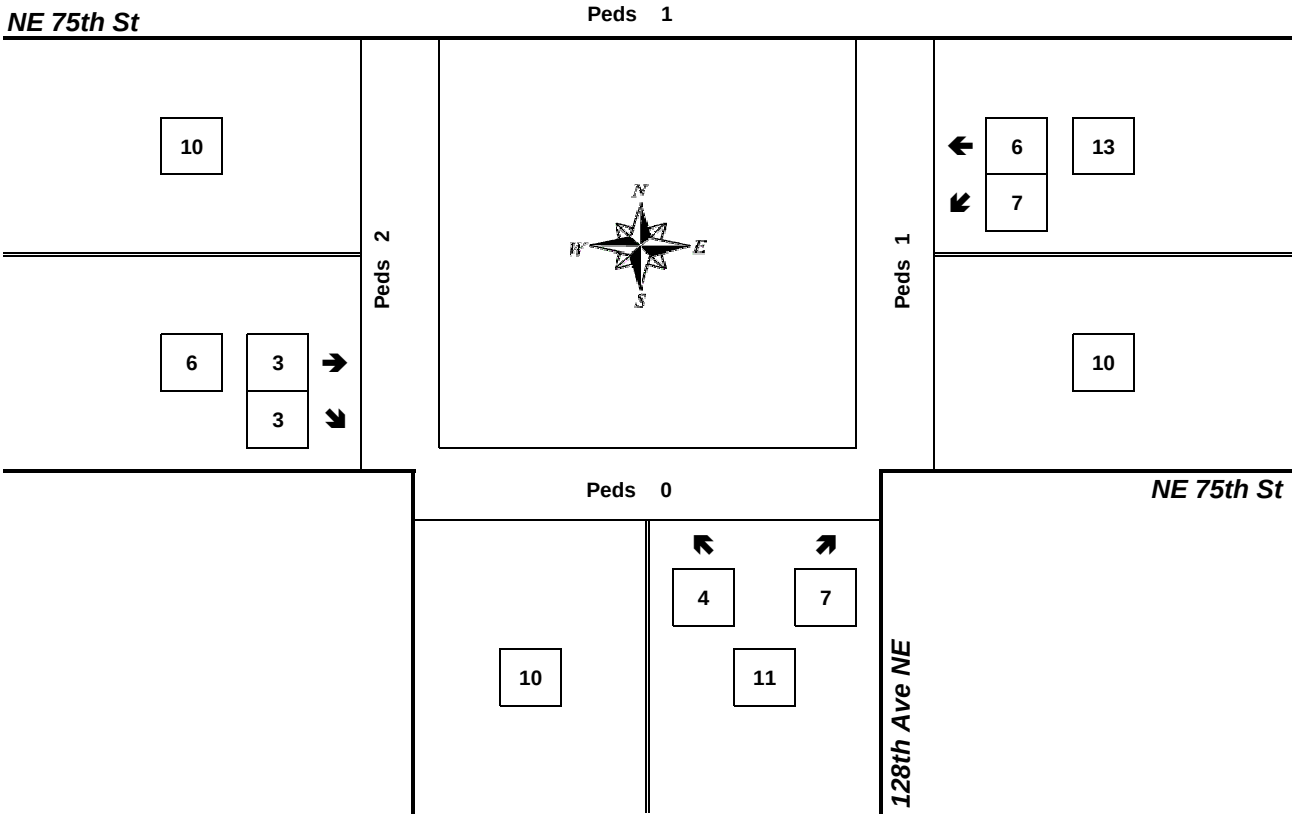
Interval Start Time	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 73rd St				Westbound NE 73rd St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	33	11	1	4	16	1	0	0	1	1	0	3	5	3	0	78	0	1	1	0
4:15 PM	0	38	11	1	9	18	1	1	0	2	2	0	3	7	3	0	94	2	1	1	0
4:30 PM	1	48	12	1	10	22	1	1	0	5	2	0	4	7	5	0	117	3	0	4	0
4:45 PM	1	56	13	1	13	23	1	2	1	6	1	0	2	9	5	0	131	3	1	5	1
5:00 PM	1	62	14	2	11	25	0	2	1	5	1	0	2	5	5	0	132	4	1	5	1

Peak Hour Summary

Mark Skaggs
(206) 251-0300

128th Ave NE & NE 75th St

4:30 PM to 5:30 PM
Wednesday, February 22, 2012

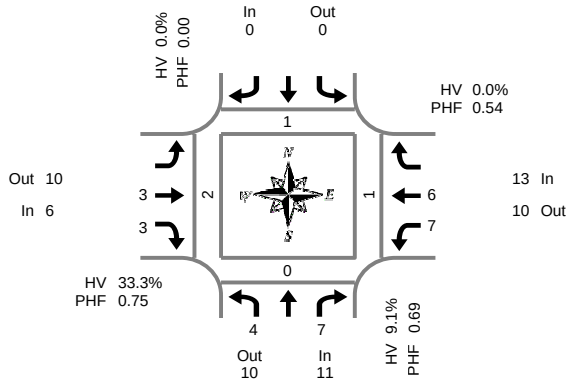


Approach	PHF	HV%	Volume
EB	0.75	33.3%	6
WB	0.54	0.0%	13
NB	0.69	9.1%	11
SB	0.00	0.0%	0
Intersection	0.75	10.0%	30

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Mark Skaggs
(206) 251-0300



Peak Hour Summary
4:30 PM to 5:30 PM

128th Ave NE & NE 75th St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Interval Total	Pedestrians Crosswalk			
	L		R	HV					T	R	HV	L	T		HV		North	South	East	West
4:00 PM	2		1	0					2	0	0	0	0		0	5	0	0	0	0
4:15 PM	0		0	0					0	0	0	0	1		0	1	0	0	0	0
4:30 PM	2		1	1					0	2	2	1	1		0	7	0	0	0	0
4:45 PM	1		3	0					2	0	0	2	0		0	8	0	0	0	0
5:00 PM	0		2	0					0	0	0	3	0		0	5	1	0	1	2
5:15 PM	1		1	0					1	1	0	1	5		0	10	0	0	0	0
5:30 PM	1		2	0					0	0	0	0	0		0	3	0	0	0	0
5:45 PM	1		2	1					0	0	0	0	0		0	3	0	0	0	0
Total Survey	8		12	2					5	3	2	7	7		0	42	1	0	1	2

Peak Hour Summary
4:30 PM to 5:30 PM

By Approach	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total		In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	11	10	21	1	0	0	0		6	10	16	2	13	10	23	0	30	1	0	1	2
%HV	9.1%				0.0%				33.3%				0.0%				10.0%				
PHF	0.69				0.00				0.75				0.54				0.75				

By Movement	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Total
	L		R	Total				Total		T	R	Total	L	T		Total	
Volume	4		7	11				0		3	3	6	7	6		13	30
PHF	0.50		0.58	0.69				0.00		0.38	0.38	0.75	0.58	0.30		0.54	0.75

Rolling Hour Summary
4:00 PM to 6:00 PM

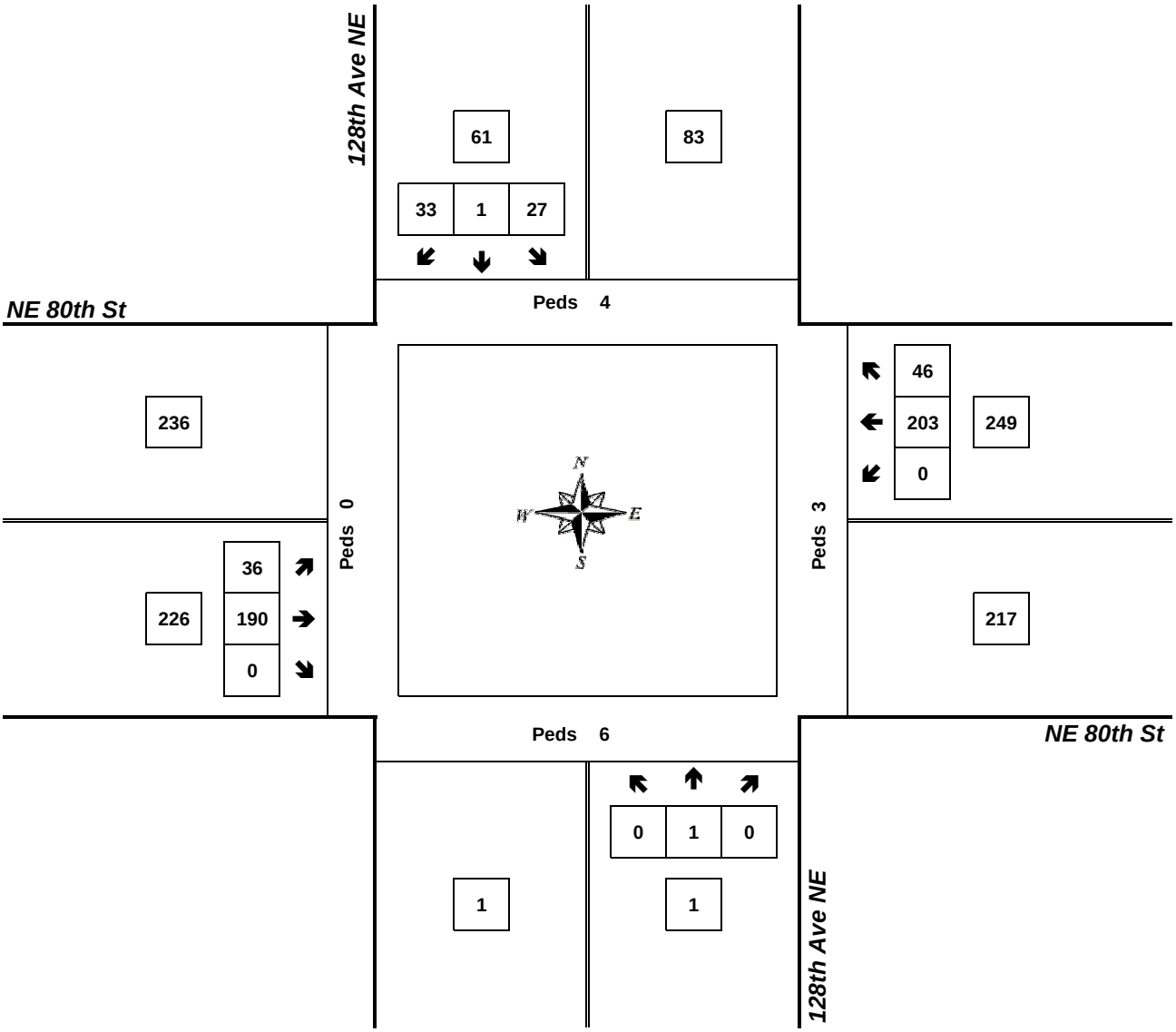
Interval Start Time	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Interval Total	Pedestrians Crosswalk			
	L		R	HV					T	R	HV	L	T		HV		North	South	East	West
4:00 PM	5		5	1					4	2	2	3	2		0	21	0	0	0	0
4:15 PM	3		6	1					2	2	2	6	2		0	21	1	0	1	2
4:30 PM	4		7	1					3	3	2	7	6		0	30	1	0	1	2
4:45 PM	3		8	0					3	1	0	6	5		0	26	1	0	1	2
5:00 PM	3		7	1					1	1	0	4	5		0	21	1	0	1	2

Peak Hour Summary

Mark Skaggs
(206) 251-0300

128th Ave NE & NE 80th St

5:00 PM to 6:00 PM
Wednesday, February 22, 2012

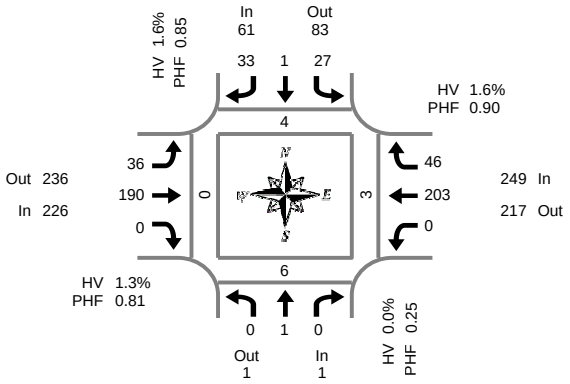


Approach	PHF	HV%	Volume
EB	0.81	1.3%	226
WB	0.90	1.6%	249
NB	0.25	0.0%	1
SB	0.85	1.6%	61
Intersection	0.93	1.5%	537

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Mark Skaggs
(206) 251-0300



Peak Hour Summary
5:00 PM to 6:00 PM

128th Ave NE & NE 80th St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	0	0	0	4	0	6	0	4	19	0	1	0	27	9	0	69	3	4	4	0
4:15 PM	0	0	0	0	2	0	9	1	8	30	0	1	0	35	5	1	89	1	0	0	0
4:30 PM	0	0	0	0	3	0	3	0	5	28	0	1	0	30	2	0	71	4	5	0	0
4:45 PM	0	0	0	0	7	1	6	0	10	34	1	0	0	40	6	1	105	0	5	0	0
5:00 PM	0	0	0	0	3	1	8	0	5	47	0	1	0	54	10	0	128	0	1	2	0
5:15 PM	0	1	0	0	6	0	8	0	15	55	0	0	0	51	8	1	144	1	3	1	0
5:30 PM	0	0	0	0	9	0	9	1	7	49	0	1	0	55	14	1	143	2	2	0	0
5:45 PM	0	0	0	0	9	0	8	0	9	39	0	1	0	43	14	2	122	1	0	0	0
Total Survey	0	1	0	0	43	2	57	2	63	301	1	6	0	335	68	6	871	12	20	7	0

Peak Hour Summary
5:00 PM to 6:00 PM

By Approach	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	1	1	2	0	61	83	144	1	226	236	462	3	249	217	466	4	537	4	6	3	0
%HV	0.0%				1.6%				1.3%				1.6%				1.5%				
PHF	0.25				0.85				0.81				0.90				0.93				

By Movement	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	1	0	1	27	1	33	61	36	190	0	226	0	203	46	249	537
PHF	0.00	0.25	0.00	0.25	0.75	0.25	0.92	0.85	0.60	0.86	0.00	0.81	0.00	0.92	0.82	0.90	0.93

Rolling Hour Summary
4:00 PM to 6:00 PM

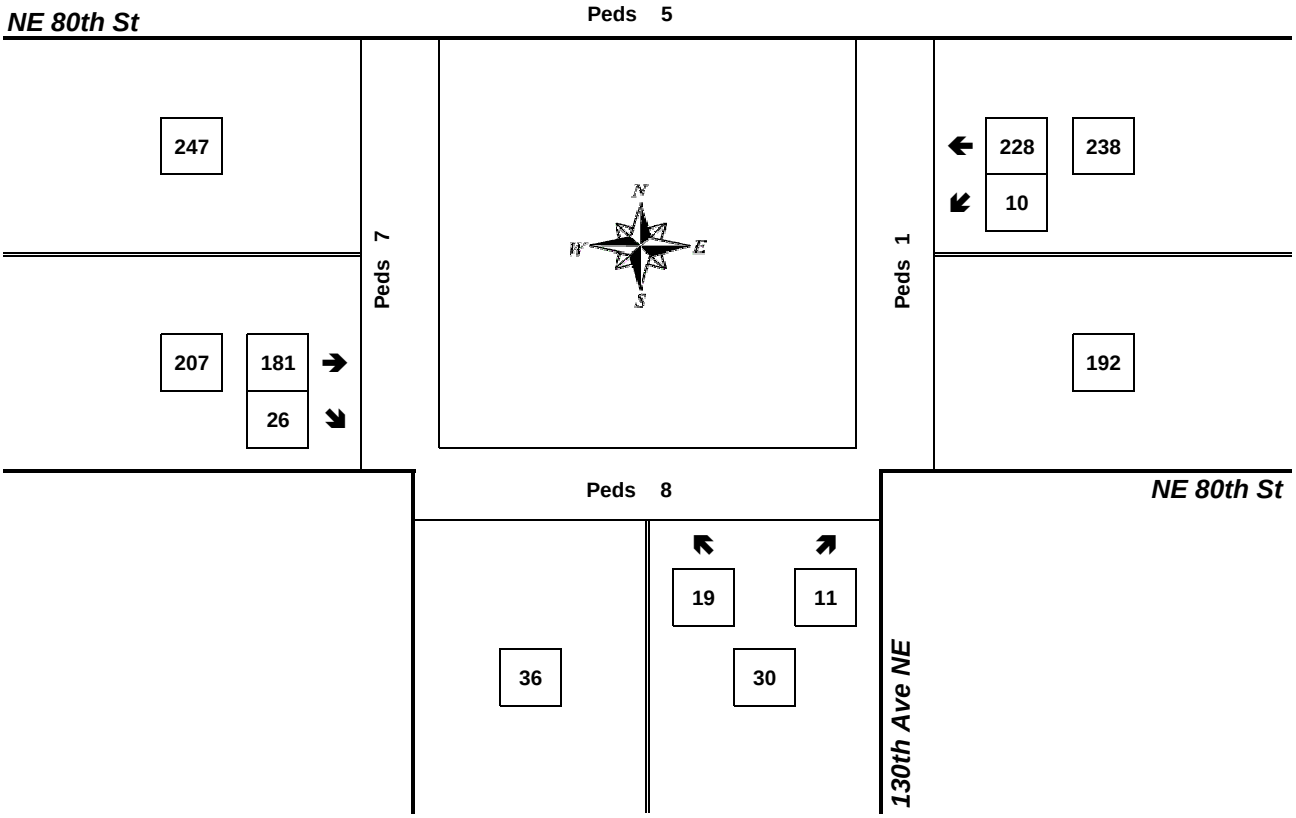
Interval Start Time	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	0	0	0	16	1	24	1	27	111	1	3	0	132	22	2	334	8	14	4	0
4:15 PM	0	0	0	0	15	2	26	1	28	139	1	3	0	159	23	2	393	5	11	2	0
4:30 PM	0	1	0	0	19	2	25	0	35	164	1	2	0	175	26	2	448	5	14	3	0
4:45 PM	0	1	0	0	25	2	31	1	37	185	1	2	0	200	38	3	520	3	11	3	0
5:00 PM	0	1	0	0	27	1	33	1	36	190	0	3	0	203	46	4	537	4	6	3	0

Peak Hour Summary

Mark Skaggs
(206) 251-0300

130th Ave NE & NE 80th St

5:00 PM to 6:00 PM
Wednesday, February 22, 2012

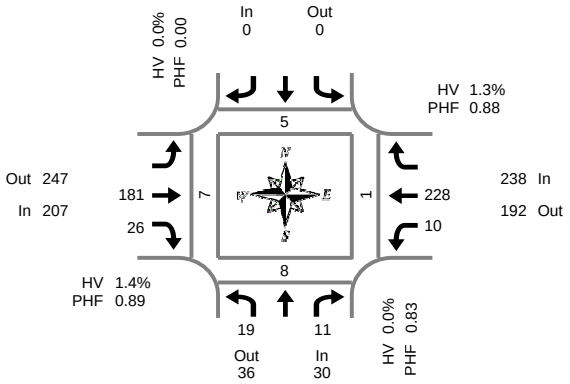


Approach	PHF	HV%	Volume
EB	0.89	1.4%	207
WB	0.88	1.3%	238
NB	0.83	0.0%	30
SB	0.00	0.0%	0
Intersection	0.88	1.3%	475

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Mark Skaggs
(206) 251-0300



Peak Hour Summary
5:00 PM to 6:00 PM

130th Ave NE & NE 80th St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L		R	HV					T	R	HV		T		HV			North	South	East	West
4:00 PM	2		4	1					18	1	1	0	32		0		57	0	1	0	2
4:15 PM	3		4	0					31	2	0	4	33		0		77	4	0	0	1
4:30 PM	3		3	0					28	1	2	0	30		2		65	7	1	0	0
4:45 PM	5		4	1					39	4	0	2	45		0		99	0	2	0	0
5:00 PM	5		2	0					42	5	1	0	53		1		107	2	3	0	0
5:15 PM	4		2	0					48	9	0	4	53		1		120	0	1	0	2
5:30 PM	4		5	0					53	5	1	3	65		1		135	2	4	1	5
5:45 PM	6		2	0					38	7	1	3	57		0		113	1	0	0	0
Total Survey	32		26	2					297	34	6	16	368		5		773	16	12	1	10

Peak Hour Summary
5:00 PM to 6:00 PM

By Approach	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total		In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	30	36	66	0	0	0	0		207	247	454	3	238	192	430	3	475	5	8	1	7
%HV	0.0%				0.0%				1.4%				1.3%				1.3%				
PHF	0.83				0.00				0.89				0.88				0.88				

By Movement	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total
	L		R	Total				Total		T	R	Total	L	T		Total	
Volume	19		11	30				0		181	26	207	10	228		238	475
PHF	0.79		0.55	0.83				0.00		0.85	0.72	0.89	0.63	0.88		0.88	0.88

Rolling Hour Summary
4:00 PM to 6:00 PM

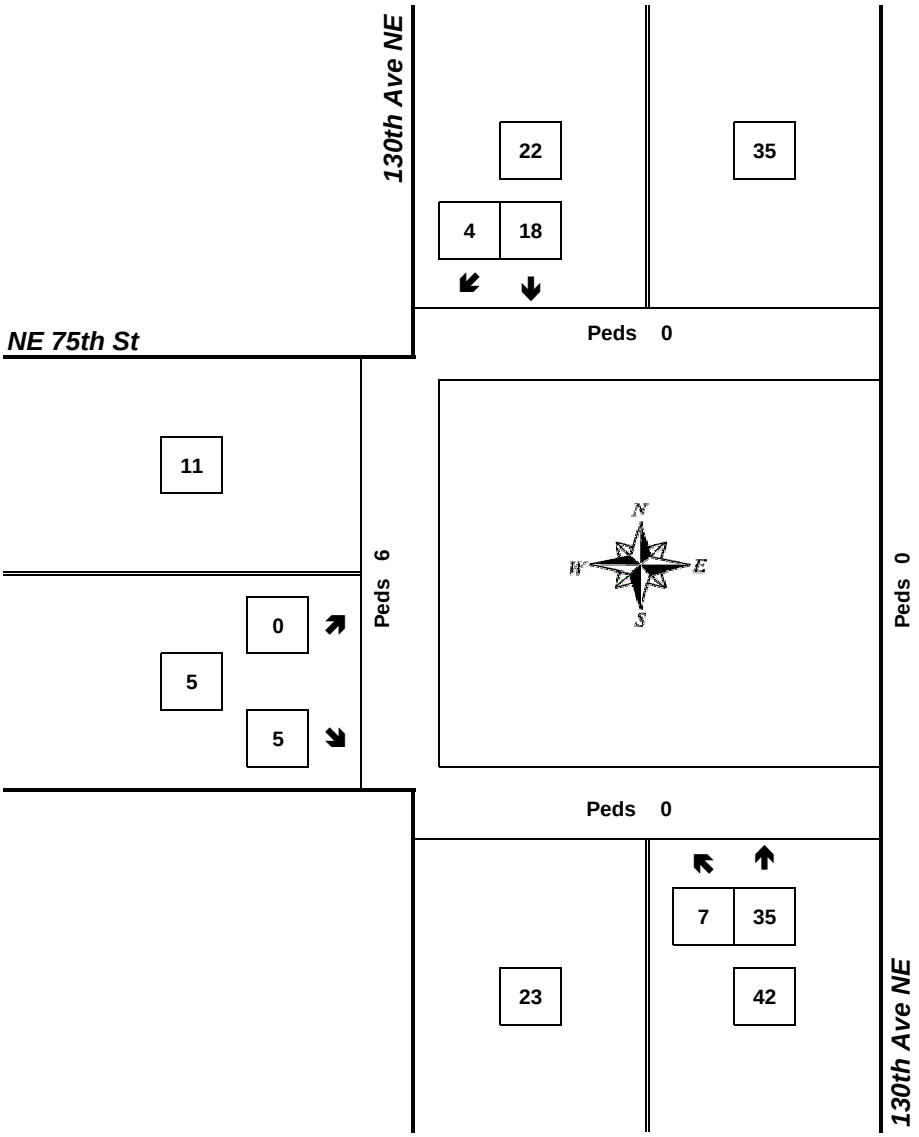
Interval Start Time	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L		R	HV					T	R	HV		T		HV			North	South	East	West
4:00 PM	13		15	2					116	8	3	6	140		2		298	11	4	0	3
4:15 PM	16		13	1					140	12	3	6	161		3		348	13	6	0	1
4:30 PM	17		11	1					157	19	3	6	181		4		391	9	7	0	2
4:45 PM	18		13	1					182	23	2	9	216		3		461	4	10	1	7
5:00 PM	19		11	0					181	26	3	10	228		3		475	5	8	1	7

Peak Hour Summary

All Traffic Data Services Inc.
Mark Skaggs
(206) 251-0300

130th Ave NE & NE 75th St

4:45 PM to 5:45 PM
Wednesday, February 22, 2012

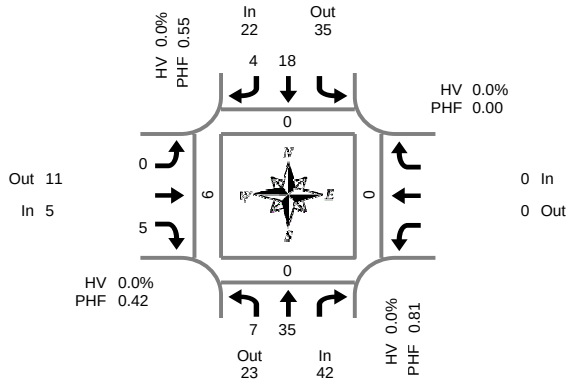


Approach	PHF	HV%	Volume
EB	0.42	0.0%	5
WB	0.00	0.0%	0
NB	0.81	0.0%	42
SB	0.55	0.0%	22
Intersection	0.75	0.0%	69

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Mark Skaggs
(206) 251-0300



Peak Hour Summary
4:45 PM to 5:45 PM

130th Ave NE & NE 75th St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Interval Total	Pedestrians Crosswalk			
	L	T		HV		T	R	HV	L		R	HV						North	South	East	West
4:00 PM	2	6		0		3	0	0	1		1	0					13	0	0	0	2
4:15 PM	1	7		0		5	1	0	1		1	0					16	0	0	0	0
4:30 PM	1	2		0		0	0	0	0		1	1					4	0	0	0	1
4:45 PM	1	8		0		4	1	0	0		2	0					16	0	0	0	1
5:00 PM	0	8		0		1	1	0	0		3	0					13	0	0	0	3
5:15 PM	3	10		0		8	2	0	0		0	0					23	0	0	0	0
5:30 PM	3	9		0		5	0	0	0		0	0					17	0	0	0	2
5:45 PM	2	4		0		5	1	0	1		0	0					13	0	0	0	0
Total Survey	13	54		0		31	6	0	3		8	1					115	0	0	0	9

Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total			North	South	East	West
Volume	42	23	65	0	22	35	57	0	5	11	16	0	0	0	0		69	0	0	0	6
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.81				0.55				0.42				0.00				0.75				

By Movement	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Total
	L	T		Total		T	R	Total	L		R	Total				Total	
Volume	7	35		42		18	4	22	0		5	5				0	69
PHF	0.58	0.88		0.81		0.56	0.50	0.55	0.00		0.42	0.42				0.00	0.75

Rolling Hour Summary
4:00 PM to 6:00 PM

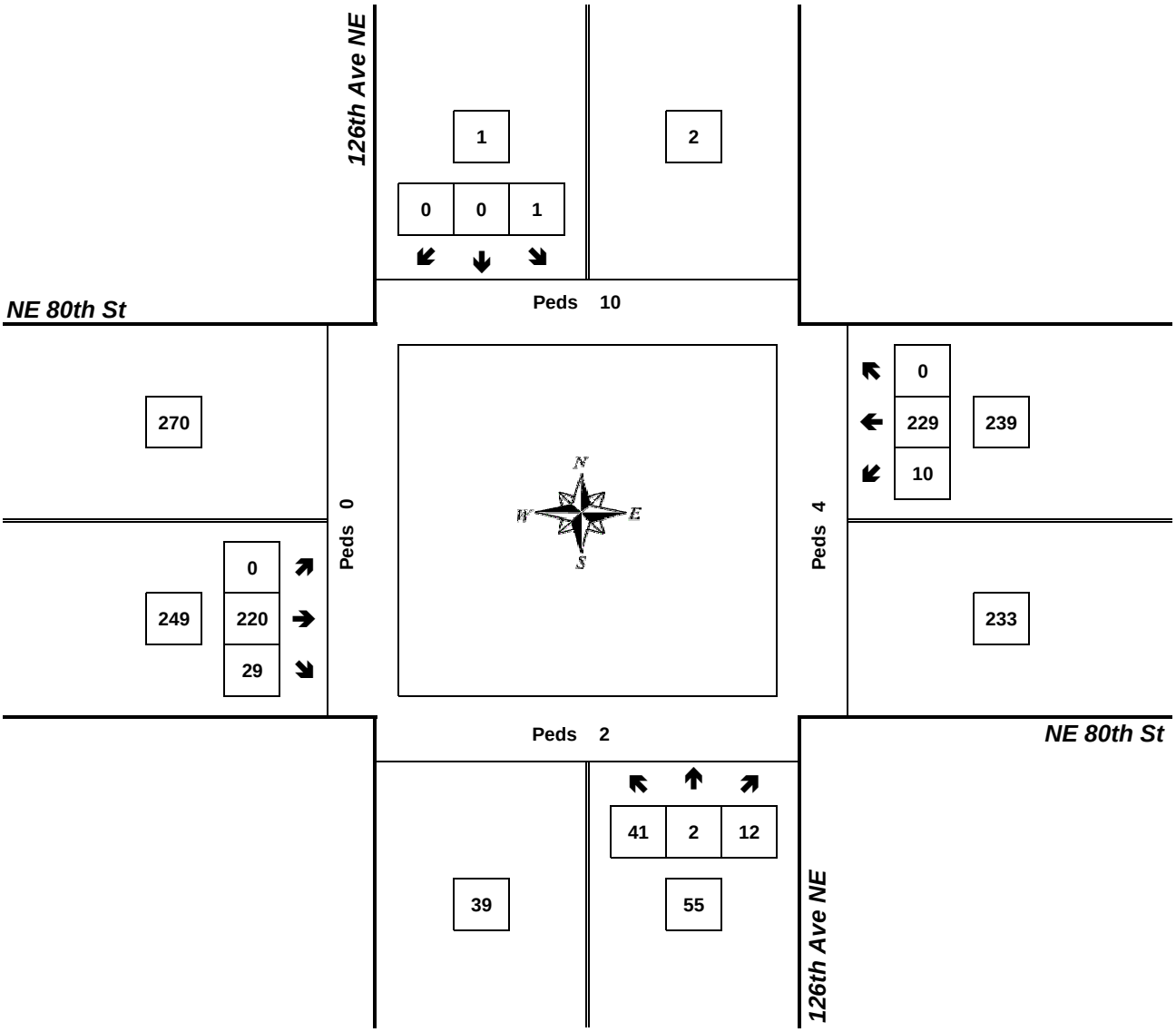
Interval Start Time	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Interval Total	Pedestrians Crosswalk			
	L	T		HV		T	R	HV	L		R	HV						North	South	East	West
4:00 PM	5	23		0		12	2	0	2		5	1					49	0	0	0	4
4:15 PM	3	25		0		10	3	0	1		7	1					49	0	0	0	5
4:30 PM	5	28		0		13	4	0	0		6	1					56	0	0	0	5
4:45 PM	7	35		0		18	4	0	0		5	0					69	0	0	0	6
5:00 PM	8	31		0		19	4	0	1		3	0					66	0	0	0	5

Peak Hour Summary

Mark Skaggs
(206) 251-0300

126th Ave NE & NE 80th St

5:00 PM to 6:00 PM
Wednesday, February 22, 2012

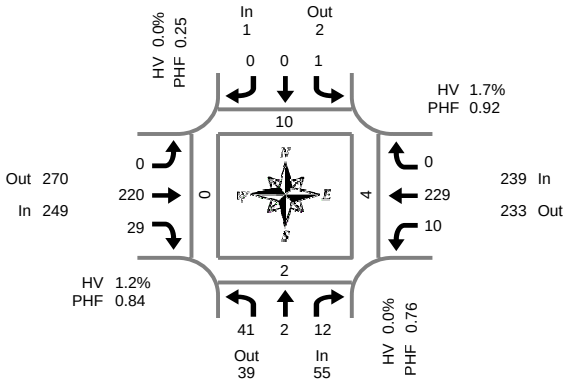


Approach	PHF	HV%	Volume
EB	0.84	1.2%	249
WB	0.92	1.7%	239
NB	0.76	0.0%	55
SB	0.25	0.0%	1
Intersection	0.89	1.3%	544

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.
Mark Skaggs
(206) 251-0300



Peak Hour Summary
5:00 PM to 6:00 PM

126th Ave NE & NE 80th St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	8	0	1	0	0	0	0	0	0	19	6	2	1	31	0	0	66	0	2	0	0
4:15 PM	3	0	3	0	0	0	0	0	0	37	4	1	1	42	0	1	90	2	0	1	1
4:30 PM	7	0	2	1	0	0	0	0	0	30	5	1	4	30	0	0	78	4	0	0	0
4:45 PM	10	0	2	0	0	0	0	0	0	44	5	0	1	43	0	1	105	2	0	2	0
5:00 PM	10	2	3	0	1	0	0	0	0	53	9	0	3	61	0	0	142	0	0	0	0
5:15 PM	14	0	4	0	0	0	0	0	0	67	7	1	5	55	0	1	152	4	1	0	0
5:30 PM	8	0	1	0	0	0	0	0	0	61	6	1	1	64	0	2	141	2	1	2	0
5:45 PM	9	0	4	0	0	0	0	0	0	39	7	1	1	49	0	1	109	4	0	2	0
Total Survey	69	2	20	1	1	0	0	0	0	350	49	7	17	375	0	6	883	18	4	7	1

Peak Hour Summary
5:00 PM to 6:00 PM

By Approach	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	55	39	94	0	1	2	3	0	249	270	519	3	239	233	472	4	544	10	2	4	0
%HV	0.0%				0.0%				1.2%				1.7%				1.3%				
PHF	0.76				0.25				0.84				0.92				0.89				

By Movement	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	41	2	12	55	1	0	0	1	0	220	29	249	10	229	0	239	544
PHF	0.73	0.25	0.75	0.76	0.25	0.00	0.00	0.25	0.00	0.82	0.81	0.84	0.50	0.89	0.00	0.92	0.89

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	28	0	8	1	0	0	0	0	0	130	20	4	7	146	0	2	339	8	2	3	1
4:15 PM	30	2	10	1	1	0	0	0	0	164	23	2	9	176	0	2	415	8	0	3	1
4:30 PM	41	2	11	1	1	0	0	0	0	194	26	2	13	189	0	2	477	10	1	2	0
4:45 PM	42	2	10	0	1	0	0	0	0	225	27	2	10	223	0	4	540	8	2	4	0
5:00 PM	41	2	12	0	1	0	0	0	0	220	29	3	10	229	0	4	544	10	2	4	0

Appendix C: LOS Definitions

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

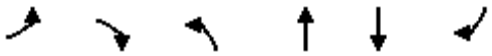
Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

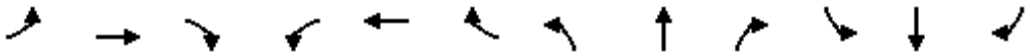
Appendix D: LOS Worksheets



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	5	5	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	7	7	7	7	7	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	30	10	13			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30	10	13			
tC, single (s)	6.7	6.5	4.2			
tC, 2 stage (s)						
tF (s)	3.8	3.6	2.3			
p0 queue free %	99	99	100			
cM capacity (veh/h)	907	988	1561			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	13	13
Volume Left	7	7	0
Volume Right	7	0	7
cSH	946	1561	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.9	3.7	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	3.7	0.0
Approach LOS	A		

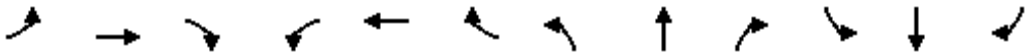
Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	5	5	5	5	60	15	10	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	5	5	5	5	65	16	11	27	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	141	141	27	141	133	73	27			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	141	141	27	141	133	73	27			82		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	99	99	99	99	99	99	100			99		
cM capacity (veh/h)	817	745	1054	817	753	994	1580			1491		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	16	87	38
Volume Left	5	5	5	11
Volume Right	5	5	16	0
cSH	854	843	1580	1491
Volume to Capacity	0.02	0.02	0.00	0.01
Queue Length 95th (ft)	1	1	0	1
Control Delay (s)	9.3	9.4	0.5	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.4	0.5	2.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	14.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	190	0	0	205	45	0	5	0	25	5	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	38	204	0	0	220	48	0	5	0	27	5	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	269			204			565	548	204	527	524	245
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	269			204			565	548	204	527	524	245
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	99	100	94	99	95
cM capacity (veh/h)	1301			1367			405	434	841	447	445	794

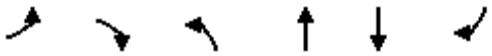
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	242	269	5	70
Volume Left	38	0	0	27
Volume Right	0	48	0	38
cSH	1301	1367	434	585
Volume to Capacity	0.03	0.00	0.01	0.12
Queue Length 95th (ft)	2	0	1	10
Control Delay (s)	1.4	0.0	13.4	12.0
Lane LOS	A		B	B
Approach Delay (s)	1.4	0.0	13.4	12.0
Approach LOS			B	B

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	45.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	180	25	10	230	20	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	205	28	11	261	23	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			233		503	219
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			233		503	219
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	99
cM capacity (veh/h)			1341		527	826

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	233	273	34
Volume Left	0	11	23
Volume Right	28	0	11
cSH	1700	1341	600
Volume to Capacity	0.14	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	11.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.4
Approach LOS			B

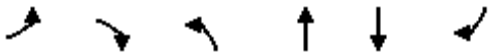
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	5	5	35	20	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	7	7	47	27	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	90	30	33			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	90	30	33			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	912	1050	1592			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	53	33
Volume Left	0	7	0
Volume Right	7	0	7
cSH	1050	1592	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.4	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	0.9	0.0
Approach LOS	A		

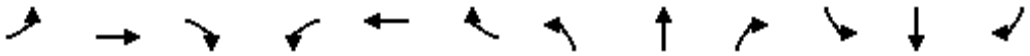
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	5	5	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	7	7	7	7	7	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	30	10	13			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30	10	13			
tC, single (s)	6.7	6.5	4.2			
tC, 2 stage (s)						
tF (s)	3.8	3.6	2.3			
p0 queue free %	99	99	100			
cM capacity (veh/h)	907	988	1561			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	13	13
Volume Left	7	7	0
Volume Right	7	0	7
cSH	946	1561	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.9	3.7	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	3.7	0.0
Approach LOS	A		

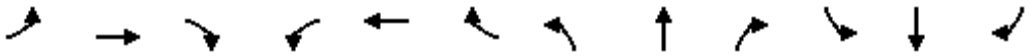
Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	5	5	5	5	60	15	10	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	5	5	5	5	65	16	11	27	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	141	141	27	141	133	73	27			82		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	141	141	27	141	133	73	27			82		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	99	99	99	99	99	99	100			99		
cM capacity (veh/h)	817	745	1054	817	753	994	1580			1491		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	16	87	38
Volume Left	5	5	5	11
Volume Right	5	5	16	0
cSH	854	843	1580	1491
Volume to Capacity	0.02	0.02	0.00	0.01
Queue Length 95th (ft)	1	1	0	1
Control Delay (s)	9.3	9.4	0.5	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.4	0.5	2.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	14.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	195	0	0	210	45	0	5	0	25	5	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	38	210	0	0	226	48	0	5	0	27	5	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	274			210			575	559	210	538	535	250
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274			210			575	559	210	538	535	250
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	99	100	94	99	95
cM capacity (veh/h)	1295			1361			398	427	836	440	438	789

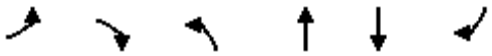
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	247	274	5	70
Volume Left	38	0	0	27
Volume Right	0	48	0	38
cSH	1295	1361	427	577
Volume to Capacity	0.03	0.00	0.01	0.12
Queue Length 95th (ft)	2	0	1	10
Control Delay (s)	1.4	0.0	13.5	12.1
Lane LOS	A		B	B
Approach Delay (s)	1.4	0.0	13.5	12.1
Approach LOS			B	B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	185	25	10	235	20	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	210	28	11	267	23	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			239		514	224
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			239		514	224
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	99
cM capacity (veh/h)			1334		519	820

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	239	278	34
Volume Left	0	11	23
Volume Right	28	0	11
cSH	1700	1334	592
Volume to Capacity	0.14	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.5
Approach LOS			B

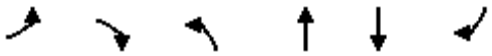
Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		30.5%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	5	5	35	20	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	7	7	47	27	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	90	30	33			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	90	30	33			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	912	1050	1592			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	53	33
Volume Left	0	7	0
Volume Right	7	0	7
cSH	1050	1592	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.4	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	0.9	0.0
Approach LOS	A		

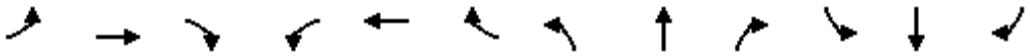
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	12	11	19	5	5	14
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	16	15	25	7	7	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	73	16	25			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	73	16	25			
tC, single (s)	6.7	6.5	4.2			
tC, 2 stage (s)						
tF (s)	3.8	3.6	2.3			
p0 queue free %	98	99	98			
cM capacity (veh/h)	845	980	1545			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	31	32	25
Volume Left	16	25	0
Volume Right	15	0	19
cSH	905	1545	1700
Volume to Capacity	0.03	0.02	0.01
Queue Length 95th (ft)	3	1	0
Control Delay (s)	9.1	5.9	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	5.9	0.0
Approach LOS	A		

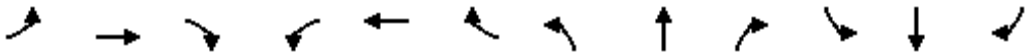
Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	11	5	5	5	60	29	10	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	12	5	5	5	65	32	11	27	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	149	157	27	149	141	81	27			97		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	149	157	27	149	141	81	27			97		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	99	99	99	99	99	99	100			99		
cM capacity (veh/h)	808	731	1054	808	746	985	1580			1472		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	23	102	38
Volume Left	5	12	5	11
Volume Right	5	5	32	0
cSH	844	827	1580	1472
Volume to Capacity	0.02	0.03	0.00	0.01
Queue Length 95th (ft)	1	2	0	1
Control Delay (s)	9.3	9.5	0.4	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.5	0.4	2.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	15.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	195	0	0	210	50	0	5	0	30	5	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	38	210	0	0	226	54	0	5	0	32	5	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	280			210			578	565	210	540	538	253
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	280			210			578	565	210	540	538	253
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	99	100	93	99	95
cM capacity (veh/h)	1289			1361			397	424	836	438	437	786

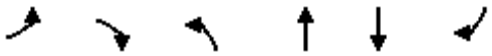
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	247	280	5	75
Volume Left	38	0	0	32
Volume Right	0	54	0	38
cSH	1289	1361	424	562
Volume to Capacity	0.03	0.00	0.01	0.13
Queue Length 95th (ft)	2	0	1	12
Control Delay (s)	1.4	0.0	13.6	12.4
Lane LOS	A		B	B
Approach Delay (s)	1.4	0.0	13.6	12.4
Approach LOS			B	B

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	47.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	185	30	14	235	25	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	210	34	16	267	28	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			244		526	227
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			244		526	227
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		94	98
cM capacity (veh/h)			1328		509	817

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	244	283	42
Volume Left	0	16	28
Volume Right	34	0	14
cSH	1700	1328	580
Volume to Capacity	0.14	0.01	0.07
Queue Length 95th (ft)	0	1	6
Control Delay (s)	0.0	0.5	11.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	11.7
Approach LOS			B

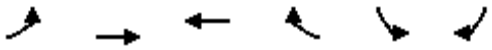
Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	7	5	5	35	20	14
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	9	7	7	47	27	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	96	36	45			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	36	45			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	100			
cM capacity (veh/h)	904	1042	1576			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	16	53	45
Volume Left	9	7	0
Volume Right	7	0	19
cSH	957	1576	1700
Volume to Capacity	0.02	0.00	0.03
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.8	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	0.9	0.0
Approach LOS	A		

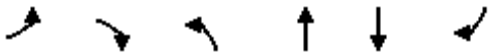
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	5	10	23	13	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	7	13	31	17	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	44				35	29
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44				35	29
tC, single (s)	4.4				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1387				978	1046

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	7	44	17
Volume Left	0	0	17
Volume Right	0	31	0
cSH	1387	1700	978
Volume to Capacity	0.00	0.03	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

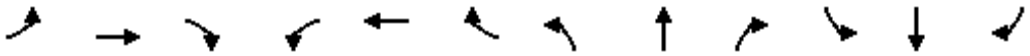
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	11	19	5	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	7	15	25	7	7	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	67	10	13			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	67	10	13			
tC, single (s)	6.7	6.5	4.2			
tC, 2 stage (s)						
tF (s)	3.8	3.6	2.3			
p0 queue free %	99	99	98			
cM capacity (veh/h)	852	988	1561			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	21	32	13
Volume Left	7	25	0
Volume Right	15	0	7
cSH	941	1561	1700
Volume to Capacity	0.02	0.02	0.01
Queue Length 95th (ft)	2	1	0
Control Delay (s)	8.9	5.8	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	5.8	0.0
Approach LOS	A		

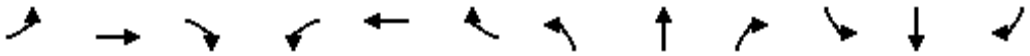
Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	11	5	5	5	60	29	10	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	12	5	5	5	65	32	11	27	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	149	157	27	149	141	81	27			97		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	149	157	27	149	141	81	27			97		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	99	99	99	99	99	99	100			99		
cM capacity (veh/h)	808	731	1054	808	746	985	1580			1472		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	23	102	38
Volume Left	5	12	5	11
Volume Right	5	5	32	0
cSH	844	827	1580	1472
Volume to Capacity	0.02	0.03	0.00	0.01
Queue Length 95th (ft)	1	2	0	1
Control Delay (s)	9.3	9.5	0.4	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.5	0.4	2.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	15.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	195	0	4	210	45	0	10	2	25	10	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	38	210	0	4	226	48	0	11	2	27	11	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	274			210			587	568	210	551	544	250
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274			210			587	568	210	551	544	250
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	97	100	94	98	95
cM capacity (veh/h)	1295			1361			387	421	836	425	432	789

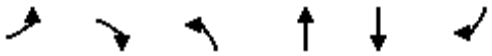
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	247	278	13	75
Volume Left	38	4	0	27
Volume Right	0	48	2	38
cSH	1295	1361	459	554
Volume to Capacity	0.03	0.00	0.03	0.14
Queue Length 95th (ft)	2	0	2	12
Control Delay (s)	1.4	0.1	13.1	12.5
Lane LOS	A	A	B	B
Approach Delay (s)	1.4	0.1	13.1	12.5
Approach LOS			B	B

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	46.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	187	25	10	239	20	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	212	28	11	272	23	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			241		521	227
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			241		521	227
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	99
cM capacity (veh/h)			1332		515	818

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	241	283	34
Volume Left	0	11	23
Volume Right	28	0	11
cSH	1700	1332	587
Volume to Capacity	0.14	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	11.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.5
Approach LOS			B

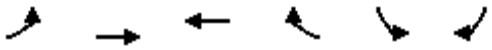
Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		30.7%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	5	5	35	20	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	7	7	47	27	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	90	30	33			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	90	30	33			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	912	1050	1592			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	53	33
Volume Left	0	7	0
Volume Right	7	0	7
cSH	1050	1592	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.4	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	0.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	5	10	14	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	7	13	19	8	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	32				29	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32				29	23
tC, single (s)	4.4				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1402				985	1054

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	7	32	8
Volume Left	0	0	8
Volume Right	0	19	0
cSH	1402	1700	985
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		